

HARDWARE DESIGNING OF A SMART ROBOTIC PET

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Human have dreamed to have robot since ancient time. Aristotle wrote of the idea in 322 BCE as a perfect measure to bring equality to civilization by removing the need for labor. Modern robots have permeated the very way of life in all aspects of human activity, particularly after the creation of the microprocessor.

In this poster, the process of developing the hardware of an autonomously movable robotic pet will be introduced. Four steps were followed when designing the hardware for robotic pet – 1) identify the need, 2) research the need, 3) develop possible solution and select best solution, 4) test and evaluate the solution, and 4) optimize the design. In particular, three major factors need to be taken in consideration—structure of the base, driving system, and power required. To ensure an efficient and economic design, all possible solutions for driving system and structure are compared by matrix chart. The power and torque needed is calculated based on the weight and speed of the robotic pet. After identify the driving system and chassis, CAD software is used to sketch the blueprint for the hardware. In addition, we need to do face recognition using the camera mounted on the robot. However, the motion of the robot may severely degrade the image and signal quality. To mitigate noise effect, special effort is made such as using special type of wheel to decrease shock of the robot.